YUAN "CHARLES" CUI

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digital-flaneur.github.io

Education

Northwestern University	Evanston, IL
Ph.D., Computer Science	2020 - Expected Jun 2026
Advisor: Matthew Kay	
Master's, Computer Science	2023
Advisor: Matthew Kay	
Oberlin College	Oberlin, OH
B.A., Mathematics, Computer Science	2016 - 2020
Budapest Semesters in Mathematics	Budapest, Hungary
Study Abroad	2019

Publications

AVEC: An Assessment of Visual Encoding Ability in Visualization Construction

Lily W. Ge, <u>Yuan Cui</u>, Matthew Kay

ACM CHI 2025

Promises and Pitfalls: Using Large Language Models to Generate Visualization Items

<u>Yuan Cui</u>, Lily W. Ge, Yiren Ding, Lane Harrison, Fumeng Yang, Matthew Kay

IEEE VIS 2024

Odds and Insights: Decision Quality in Exploratory Data Analysis Under Uncertainty

Abhraneel Sarma, Xiaoying Pu, <u>Yuan Cui</u>, Eli T Brown, Michael Correll, Matthew Kay

ACM CHI 2024 (Best Paper Honorable Mention)

Adaptive Assessment of Visualization Literacy

<u>Yuan Cui</u>, Lily W. Ge, Yiren Ding, Fumeng Yang, Lane Harrison, Matthew Kay

IEEE VIS 2023

CALVI: Critical Thinking Assessment for Literacy in Visualizations

Lily W. Ge, <u>Yuan Cui</u>, Matthew Kay

ACM CHI 2023 (Best Paper Honorable Mention)

Can an Algorithm be My Healthcare Proxy?

Duncan McElfresh, Samuel Dooley, <u>Yuan Cui</u>, Kendra Griesman, Weiqin Wang, Tyler Will, Neil Sehgal, and John Dickerson

Explainable AI in Healthcare and Medicine 2021

Professional Experience

University of Maryland | FIGX Lab	College Park, MD
Visiting Ph.D. Researcher	12/2024 - 06/2025

Developing interactive AI-powered systems for educational test development.

Max Planck Institute for Demographic Research — Rostock, Germany
Social Data Science Researcher — 06/2024 - 08/2024
  Built statistical models to estimate age-specific mortality in a data-scarce context. Coauthored a paper,
  which was accepted to Population Association of America 2025 Annual Meeting.

Stanford University | Regulation, Evaluation, and Governance Lab — Stanford, CA
Graduate Fellow — 06/2023 - 08/2023
  Designed statistical sampling techniques to estimate racial disparity when data is scarce, and established
  performance guarantees with mathematical proofs. Built simulations and estimated health disparity in
  a dataset containing ~7M Americans' healthcare records.

Carnegie Mellon University & Data Science for Social Good Foundation — Pittsburgh, PA
Data Science Fellow — 05/2022 - 08/2022
  Built a machine learning system to improve call routing of the 988 Lifeline which serves ~2M callers
  per year. Obtained results that suggested the new system could help ~20,000 additional callers per year.

University of Chicago Consortium on School Research — Hyde Park, IL
Research Intern — 03/2022 - 05/2022
  Built statistical models on Chicago Public Schools data to predict students' graduation rate.

HomeRiser, Inc — Remote
Co-founder, Head of Data Science — 01/2021 - 10/2021
  Co-founded a real estate technology start-up to provide more flexible and affordable ways to finance
  people's home ownership. Developed a financial model in Python that simulated cash flow and gener-
  ated a detailed profit and loss statement.

University of Maryland | REU - Combinatorics and Algorithms for Real Problems — College Park, MD
Undergraduate Researcher — 05/2019 - 08/2019
  Developed a machine learning model for advance healthcare directives. Deployed active learning algo-
  rithms to dynamically select survey questions based on patients' previous responses. Built a website to
  collect data. Coauthored a paper, which was accepted to the *Explainable AI in Healthcare and Medicine*.

Oberlin College Computer Science Department — Oberlin, OH
Undergraduate Researcher — 06/2018 - 08/2018
  Analyzed a repeated pricing game between a buyer and seller in the presence of privacy and the absence
  of commitment power. Conducted numerical experiments and solved for equilibrium in the game. For-
  malized results about the effect of privacy in our repeated sales setting.

Presentations, Workshops, Tutorials

Presentations

Max Planck Institute for Demographic Research. *"A Fast and Furious Introduction to Computer Science."*
Jul 2024, Rostock, Germany.

IEEE VIS. *"Adaptive Assessment of Visualization Literacy."* Oct 2023, Melbourne, Australia.

Data for Good. *"Improving the 988 Suicide & Crisis Lifeline's Service Through Better Call Routing."* Sept
2022, Seattle, WA. Joint with Irene Tang.

Tutorials

Max Planck Institute for Demographic Research. *"Building an Academic Website and Hosting on Github."*
Jul 2024, Rostock, Germany.

ACM FAccT. *"Data Externalities."* Mar 2021, Remote. Joint with Rediet Abebe, Mihaela Curmei, Andreas Haupt, and Yixin Wang.

Workshops

ACM CHI. *"Toward a More Comprehensive Understanding of Visualization Literacy."* May 2024, Honolulu, HI. Joint with Lily W. Ge, Maryam Hedayati, Yiren Ding, Karen Bonilla, Alark Joshi, Alvitta Ottley, Benjamin Bach, Bum Chul Kwon, David N. Rapp, Evan Peck, Lace M. Padilla, Michael Correll, Michelle A. Borkin, Lane Harrison, Matthew Kay.

Honors and Awards

NICO Intersection Science Fellowship, Northwestern University	2024
HCI + Design Cluster Fellowship, Northwestern University	2022
Phi Beta Kappa, Oberlin College	2020
Elbridge P. Vance Scholar of Mathematics, Oberlin College	2016 - 2020

Professional Service

The Journal of Visualization and Interaction
Open Practices Chair	2024 - present

EAAMO Bridges (formerly MD4SG)
Co-Director	2022 - present
Co-Lead of the Data Economies Working Group	2021
Membership Manager	2021

Conference Reviewer
IEEE VIS	2024
ACM CHI	2024

Conference Volunteer
ACM STOC	2021
ACM EC	2020

Selected Media

Making Meaningful Impact: Using Data Science for Social Good	2022
Carnegie Mellon University Heinz College	
Applying Technical Knowledge for Social Good	2022
Northwestern University Computer Science	
Nine International Obies Will Begin PhDs in STEM	2020
Oberlin College and Conservatory	
Oberlin Shansi Announces Summer 2019 In-Asia Grant Recipients	2019
Oberlin College and Conservatory	
Building Solidarity with Youth in Nepal	2017
Oberlin College and Conservatory	

Teaching Experience

Teaching Assistant

Northwestern University   Evanston, IL
  Computer Science Department   2021-2024

  Design & Analysis of Algorithms, Mathematical Foundations of Computer Science (2x)

Oberlin College   Oberlin, OH
  Mathematics Department   2017-2020

  Linear Algebra (2x), Discrete Mathematics (2x), Calculus II, Calculus I

  Economics Department   2019

  Principles of Finance

  Computer Science Department   2017

  Introduction to Computer Science

Technical

Programming
  Python, R, JavaScript, PostgreSQL, Mathematica, LaTeX

Organization
  Github, Notion, Trello

Research Software and Skills
  Qualtrics, Prolific